

IN THE CLAIMS

1. – 11. (Cancelled)

12. (New) A method of preparing a clean, fully-closed, zero discharging pulping process by oxidation, wherein raw materials are non-wood or wood materials, and the process comprises:

- (A) pretreatment of the raw materials;
- (B) the materials pretreated in (A) are oxidizing-dipped in a presence of active oxygen A and a cellulose protectant consisting of metal ions and metal ion ligands;
- (C) the materials treated by the oxidizing dipping in (B) are ground in the presence of active oxygen A and active oxygen B;
- (D) concentrating and beating;

wherein the active oxygen A is a free radical generated from one or two of O_2 and H_2O_2 ; the active oxygen B is one or more selected from O_3 , 1O_2 (singlet oxygen), $O_2^-/HOO\cdot$ (superoxide anion radical), and free radicals generated from O_3 , 1O_2 and $O_2^-/HOO\cdot$ in water in the presence of an organic solvent.

13. (New) The process according to claim 12, wherein the non-wood raw material is full cotton stalk including one or a mixture of two or more selected from cellulose, hemicellulose, lignin contained in cotton bast, cotton stem, cotton stalk root and full cotton holocellulose, valvular cotton, cotton short linter, cotton dregs, cottonseed; and wherein the wood raw material comprises needle-leaved wood and broad-leaved wood.

14. (New) The process according to claim 13, wherein the wood raw material comprises white pine, Masson pine, oregano pine, aspen wood, fast-growing poplar, or birch.

15. (New) The process according to claim 12, wherein the metal ions are one or a mixture of two or more selected from Mg^{2+} , Fe^{2+} , Mn^{2+} , Cu^{2+} , Al^{3+} , Zn^{2+} , and Si^{2+} ; the metal ion ligands are one or the mixture of two or more selected from dimethyl dioxirane, diethylenetriamine pentaacetic acid, ethylenediaminetetraacetic acid, sodium alkyl-sulfonate, and polyoxyethylene alkylether.

16. (New) The process according to claim 12, wherein an amount of the metal ions is between 1-1000 ppm by weight.

17. (New) The process according to claim 12, wherein the oxidizing-dipping treatment is carried out in an acidic condition in which a pH is between 1-4.

18. (New) The process according to claim 17, wherein the oxidizing dipping treatment is carried out in an acidic condition in which the pH is between 1.5-2.5.

19. (New) The process according to claim 12, wherein the grinding is carried out in an acidic condition in which a pH is between 1-4.

20. (New) The process according to claim 19, wherein the grinding is carried out in an acidic condition in which the pH is between 2.5-3.8.

21. (New) The process according to claim 12, wherein a concentration of active oxygen A in the oxidizing-dipped materials is 0.01-2.0 wt%, and a concentration of active oxygen B in the oxidizing-dipped materials is 0.1-50 $\mu\text{mol/L}$.

22. (New) The process according to claim 12, wherein the process further comprises:

(A) during the grinding process, the active oxygen is dropped into a disc refiner, in which heat energy is generated by the rotation of the disc, and the energy is transferred into the materials for reaction, and then the cellulose is separated from the intercellular space;

(B) self-cycling, wherein the raw materials are pretreated and then sent into the oxidation-dipping reaction system, wherein all water in the process is divided into two parts to be self-cycled in the process; wherein the first part is the water from the process of raw materials cleaning treatment, wherein it is purified by centrifugal cleaning and the solid sediments are taken away; the pulps are sent to the conventional beating process, and water generated in the process is cycled into a purification pool where a 0.1%-0.15% ozonizer (O_3 generator) is installed to decolor the water, and the resulting water contains minor oxygen free radicals and is pumped into the cycling water system; and wherein the second part is the water from the oxidizing process, which water is cleaned with centrifugation and then is concentrated with a common decker, the pulp is sent to the pulp tank and then to a papermaking plant, and the water produced is filtrated and sent to the water-purifying tank for self-cycling, the purified water is pumped into the material cleaning system, the oxidizing dipping system, the oxygen grinding system and the screening system for being recycled within the company.

23. (New) The pulp obtained from a process according to any one of claims 12 to 22.